Cambridge, Somerville and Jamaica Plain. The titles are given and with each title are index letters indicating in which library the periodical may be found. Numerous cross references add to the value of the list, which, while intended for students in the neighborhood of Boston, will prove of great value to investigators in any locality.

In this connection we might call attention to the fact that the Boston Society of Natural History published,[5] a few years ago a list of serial publications currently received in its library and that it has now issued a supplement to this list as well as a list of discontinued serial publications in its library[6] of about four hundred titles.

General Notes.

PETROGRAPHY.[1]

Igneous Rocks of Trans-Pecos, Texas.—The igneous rocks intrusive in the sedimentary series of Trans-Pecos, Texas, according to Osaun[2] comprise plutonic, dyke and effusive types belonging to a series of rocks rich in soda. They are characterized by the possession of alkaline pyroxenes and amphiboles (aegirine, aegirine-augite and arfvedsonite), of microperthitic intergrowths of orthoclase and albite, and of riebeckite, lavenite and a mineral resembling ainigmatite. In the Apache Mountains the plutonic rocks are accompanied by dykes of paisanite, tinguaite and bostonite. The intrusive phases of this series are eleolite-syenites, normal and porphyritic varieties, aegirine-syenites and normal syenites. The dyke rocks identified are tinguaite, bostonite, paisanite, (see analysis I, below), and the effusives are rhyolites and phonolites. Several of these rocks have been noticed in the reports of the Texas Geological Survey.[3] The paisanite is regarded as a quartz bearing member of the gromdite-tinguaite series as found in the neighborhood of Christiana. The Texan phonolite is of such a peculiar type that it has been designated as apachite. It occurs in two laccolites and in sheet form. The rock is composed of phenocrysts of sanidine and nepheline, the latter often surrounded by rims of amphiboloids in a

[5] Proceedings of the Boston Society of Natural History. Vol. XXVI, 1894.
[6] Proceedings, vol. XXVIII, 1897.
[1] Edited by Dr. W. S. Bayley, Colby University, Waterville, Me.
[2] Min. u. Petrog. Mitth., XV, p. 394.
[3] Cf. AMERICAN NATURALIST, 1894, p. 514.

groundmass consisting of diopside-malacolite, augite, aegirin-augite and aegirine, amphiboles, related to arvfedsonite and katoforite, ainigmatite, several generations of feldspar and a small quantity of glass. Apachite differs from normal phonolite in the great abundance of ainigmite and the members of the hornblende group, and in the younger age of the latter with respect to the pyroxene. It contains also great quantities of microperthitic feldspars.

An analysis of the rhyolite of Fort Davis is given under II.

	SiO_2	Al_2O_3	Fe_2O_3	FeO	MgO	CaO	Na_2O	K_2O	H_2O	TiO_2	P_2O_5	Total
I.	73.35	14.38	1.96	.34	.09	.26	4.33	5.66				= 100.37
II.	71.10	11 39	5.33		1.54	.08	3.95	6.37	.44	.57	.05	= 100.82

Italian Petrographical Studies.—In a recent paper, Washington[4] summarizes the results of his work on the Bolsena-Vesuvius volcanics, and presents some views on the classification of leucite rocks and of those intermediate in composition between trachytes and basalts. In accordance with the nature of their feldspathic constituent, he would divide trachyte-basalts into a trachyte series, embracing those rocks containing only an alkali-feldspar, a trachy-andesitė series, including those containing an alkali-feldspar and an acid plagioclase, a trachy-dolerite series, composed largely of an alkali feldspar and a basic plagioclase, an andesite series—acid plagioclase (andesine-oligoclase) rock, and a basalt series, a basic plagioclase series. Among the trachy-andesites the author would place the Iceland rhyolites, vulcanite, dornite, the Euganean and the basic auvergne trachytes, and among the trachy-dolerite series the toscanites, the vulsinites and the ciminites described by himself, and the banakites, shoshonites and absarokites of the western United States. The leucite rocks met with in the Italian volcanoes are thought to be best classified as leucitites, leucite-basalts, leucite-basanites, leucite-tephrites, leucite-trachytes and leucite-phonolites. Upon comparing their analyses the silica contents of these rocks are discovered to cluster around 49 per cent and 56 per cent, a fact which is regarded as not due to accident. The original magma, of which the Italian volcanoes are the differentiated products, is thought to have had a composition approximating the following: SiO_2=57–58; Al_2O_3=17–18; FeO (Fe_2O_3)=6–7; MgO=2–3; CaO =5–6.5; Na_2O=2.25; K_2O=7–8; H_2O=1–1.5 per cent.

Rock Differentiation.—Iddings[5] devotes a few pages to his theory of rock differentiation as applied to the Electric Peak volcanics, reply-

[4] Jour. of Geology, Vol. V, p. 349.

[5] Quart. Jour. Geol. Soc., Vol. LII, 1896, p. 606.

ing to criticisms recently made by Brögger. This author declares that the order of primary differentiation can be learned only from a study of large bodies of plutonic rocks, and that conclusions with respect to this subject based on the study of extensive masses are not reliable. He further states that the order of succession in eruptions is from basic to acid magmas, often ending with basic ones, and not from intermediate magmas to greater and greater extremes. After describing at some length the general distribution of the igneous rocks in Idaho, Montana and Wyoming, and comparing the great volume of the effusive rocks erupted in this volcanic district with the relatively small (though actually great) volume of intrusive rocks, Iddings states that he cannot but believe that the differentiation which gave rise to the former must have been more fundamental than that which gave rise to the intrusive rocks, and hence its products reveal the true character of the primary differentiated of a molten magma at considerable depths beneath the surface. Moreover, the sequence of the intrusive rocks is practically the same as that of the effusive in the Electric Peak district, viz., from intermediate through acid to basic rocks.

Granites of Pyramid Peak District, California.—Lindgrew[6] describes the rocks of the Pyramid Peak district in the Sierra Nevadas as consisting of an older series of slates, tuffs, schists, porphyrites and granitic rocks overlain by Tertiary andesites, rhyolites and basalts. The granites are intrusive in the old series, metamorphosing the latter for a distance of several miles from their contacts with them. The clay slates in their most metamorphosed forms are micaceous schists or gneisses. At a greater distance from the granite they are 'knoten schiefer,' often carrying andalusite. The granitic rocks include aplites, granites, granite-diorites, diorites and gabbro. The highest ridges of the district are composed of granitite. Granodiorite is the predominant rock. It consists of quartz, an acid plagioclase, biotite, hornblende and a little sphene and magnetite. The rock is intermediate in composition between quartz-mica-diorite and Brögger's quartz-monzonite. While not always easily distinguished from the former rock, the author would restrict the name granodiorite to rocks containing 59 per cent.–69 per cent. SiO_2, 14 per cent.–17 per cent. Al_2O_3, 1½ per cent.–2¼ per cent. Fe_2O_3, 1½ per cent.–4¼ per cent. FeO, 3 per cent.–6½ per cent. CaO, 1 per cent.–2½ per cent. MgO, 1 per cent.–3¾ per cent. K_2O and 2½ per cent.–4½ per cent. Na_2O. Analyses of the granite (I) and of the grano-diorite (II) follow:

[6] Amer. Jour. Sci., Vol. III, 1897, p. 301.

	SiO_2	TiO_2	Al_2O_3	Fe_2O_3	FeO	CaO	MgO	K_2O	Na_2O	H_2O at 100°	H_2O at 100°	$+P_2O_5$	
I.	77.68	.14	11.81	.72	.51	.72	.18	5.00	2.96	.04	.27	.10	=100.13
II.	67.45	.58	15.51	1.76	2.21	3.60	1.10	3.66	3.47	.14	.63	.12	=100.25

Pegmatite.—As the conclusion of a very thorough discussion of the origin of pegmatite Crosby[7] and Fuller declare that this rock is the product of crystallization from an igneous magma saturated with water —an igneo-aqueous solution. The authors, moreover, believe that no sharp line of distinction can be drawn between dykes and veins and, therefore, that veins are clearly entitled to some degree of recognition in the lithological classification.

BOTANY.[8]

Gray's Synoptical Flora.[9]—On the tenth of June, just twenty months after Fascicle I, Dr. Robinson brought out Fascicle II of the new edition of Gray's Synoptical Flora of North America. It includes the "orders" Caryophyllaceæ (by B. L. Robinson), Ficoideæ (by B. L. Robinson), Portulacaceæ, Tamariscineæ (by B. L. Robinson), Elatinaceæ, Hypericaceæ (by J. M. Coulter), Ternstroemiaceæ, Cheiranthodendreæ, Malvaceæ, Sterculiaceæ, Tiliaceæ, Linaceæ (by W. Trelease), Malpighiaceæ, Zygophyllaceæ, Geraniaceæ (by W. Trelease), Rutaceæ, Simarubaceæ, Burseraceæ, Anacardiaceæ, Meliaceæ, Aquifoliaceæ (by W. Trelease), Cyrillaceæ, Olacinaceæ, Celastraceæ (by W. Trelease), Rhamnaceæ (by W. Trelease), Vitaceæ (by L. H. Bailey), Sapindaceæ (by B. L. Robinson), and Polygalaceæ (by B. L. Robinson). It is thus seen that of these twenty-eight families, twelve were prepared by other hands than Dr. Gray's, and in several of the remaining sixteen more or less extensive revisions were made by Dr. Robinson.

We note with interest the much freer acceptance of disputed names than in the previous fascicle; thus we have *Impatiens aurea* Mahl. and *I. biflora* Walt. (instead of *I. pallida* Nutt. and *I. falva* Nutt.); *Vitis vulpina* L. (instead of *V. riparia* Mx.); *Vitis rotundifolia* Mx. (instead of *V. vulpina* of American authors); *Acer saccharinum* L. (instead of *A. dasycarpum* Ehrh.); *Acer saccharum* Marsh (instead of *A. sacchari-*

[7] Technology Quarterly, IX, 1896, p. 326.

[8] Edited by Prof. C. E. Bessey, University of Nebraska, Lincoln, Nebraska.

[9] *Synoptical Flora of North America*, Vol. I, Pt. I, Fascicle II. Polypetalæ from the Caryophyllaceæ to the Polygalaceæ, by Asa Gray M. D., continued and edited by Benjamin Lincoln Robinson, Ph. D., pp. 207 to 506. Issued June 10, 1897. New York, American Book Company.